GREENHOUSE CROP PRODUCTION & ENGINEERING DESIGN SHORT COURSE

MARCH 2, MORNING

7:00 am  Registration
8:00 – 8:15 am  Welcome and Introductions, Dr. Murat Kacira, Director, UA-CEAC

FUNDAMENTALS OF HYDROPONICS & CONTROLLED ENVIRONMENT AGRICULTURE (CEA)

8:15 – 9:00 am  Controlled Environment Greenhouse and Hydroponics – Limitless Opportunity
    Dr. Merle Jensen, Professor Emeritus, School of Plant Sciences, The University of Arizona,
    Founder of the UA-CEAC in 2000

9:00 – 9:45 am  Hydroponics, Medium Composition & Delivery Systems
    Myles Lewis, MS, Owner, Arizona Vegetable Company & Instructor, CEAC Intensive Workshop

9:45 – 10:00 am  Discussion of Previous Lectures, Q&A

10:00 - 10:30 am  Coffee Break and Networking at Exhibitor Gallery

10:30 - 11:15 pm  Greenhouse Structures- Glazing &Environmental Control
    Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona,
    Greenhouse Extension Specialist, CALS

11:15 - 12:00 pm  Managing Plant Nutrition for Quality Crop Production
    Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The University of Arizona
    Instructor, CEAC Tomato Intensive Workshop

12:00 - 1:00 pm  Lunch Provided- Eating and Networking Opportunity

MARCH 2, AFTERNOON

INTEGRATED PEST MANAGEMENT

1:00 – 1:45 pm  Biotech: Tissue Culture Procedures & Its Value added to the CEA Market
    Dr. Hope Jones, Founder & CEO, Emergent Cannabis Sciences

1:45 – 2:30 pm  Scouting for Pests and Insects
    Karin Tifft- Consultant, Greenhouse Vegetable Consultants, LLC

2:30 – 2:45 pm  Discussion of Previous Lectures, Q&A

2:45 – 3:15 pm  Coffee Break and Networking at Exhibitor Gallery

3:15 – 3:30 pm  3, 5 Minute Exhibitor Presentations

3:30 – 4:15 pm  Pest and Disease Identification
    Dr. Stacy Tollefson, Professor of Practice, Biosystems Engineering, The University of Arizona

4:15 – 5:00 pm  Pest Control Strategies
    Dr. Stacy Tollefson, Professor of Practice, Biosystems Engineering, The University of Arizona

5:00 – 5:30 pm  Discussion of Previous Lectures

6:00 – 7:30 pm  Welcome Reception – Fueled by appetizers & cash bar

6:30 pm  CEAC Mission Award Presentation
2020 Short Course Program

MARCH 3, MORNING
7:00am   Breakfast provided- Eating and Networking Opportunity

ENGINEERING CONSIDERATIONS & OPTIMAL SYSTEMS DESIGN AND MANAGEMENT

7:55 – 8:00 am   Welcome & Announcements

8:00 – 8:45 am   Monitoring Your Greenhouse Environment: Simple Tools to Technology Trends
     Dr. Murat Kacira – Professor, Biosystems Engineering, The University of Arizona

8:45 – 9:30 am   Smart Sensing and Environmental Control in CEA
     Dr. Tharindu Weeraratne, Autogrow

9:30 – 9:45 am   Discussion of Previous Lectures – Q&A

9:45 – 10:00 am   3, 5-minute Exhibitor presentations

10:00 – 10:30 am  Coffee Break and Networking

10:30 – 11:15 am  Advances in Vertical Farming Design and Strategies
     Dr. Joel Cuello, Professor, Biosystems Engineering, The University of Arizona

11:15 – 12:00 pm  Greenhouse Energy Conservation Practices
     Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona

12:00 – 12:15 pm   Discussion of Previous Lectures – Q&A

12:15 – 1:15 pm   Lunch Provided- Eating and Networking Opportunity

MARCH 3, AFTERNOON

FERTIGATION REQUIREMENTS

1:15 – 2:00 pm   Recirculation, Microbial Issues, and Treatment Systems
     Dr. Rosa Raudales, Assistant Professor of Horticulture and Greenhouse Extension Specialist, University of Connecticut

2:00 – 2:45 pm   Design, Monitoring and Control of Recirculating Nutrient Delivery Systems
     Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona

2:45 – 3:00 pm   Discussion of Previous Lectures – Q&A

3:00 – 3:15 pm   3, 5-minute Exhibitor presentations

3:15 – 3:45pm   Coffee Break, Visit Exhibit

3:45 – 4:30 pm   Nutrient Programs based on Analyses of Water, Nutrient Solutions, & Plant Tissue
     Dr. Rosa Raudales, Assistant Professor of Horticulture and Greenhouse Extension Specialist, University of Connecticut

4:30 – 5:15 pm   Discussion of Previous Lectures– Q&A

Dinner – On Your Own
2020 Short Course Program

**MARCH 4, MORNING**

7:00am  Breakfast provided

**ALTERNATIVE PRODUCTS IN CEA**

7:55 – 8:00 am  Welcome & Announcements

8:00 – 8:45 am  Hemp in CEA  
William Artwohl, West Coast Greenthumbs

8:45 – 9:30 am  Mushrooms in CEA  
Dr. Barry Pryor, Professor, School of Plant Sciences, The University of Arizona

9:30 – 9:50 am  Discussion of Previous Lectures - Q&A

9:50 – 10:15 am  Coffee Break and Networking

10:15 – 11:00 am  Strawberries in CEA  
Myles Lewis, MS, Owner, Arizona Vegetable Company  
Instructor, CEAC Lettuce Intensive Workshop

11:00 – 11:45 pm  Edible Insects Production in CEA Systems  
Dr. Goggy Davidowitz, Associate Professor, Department of Entomology, Ecology and Evolutionary Biology, The University of Arizona

11:45 – 12:00 pm  Discussion of Previous Lectures, Q&A

12:00 – 1:00 pm  Lunch Provided- Eating and Networking Opportunity

**MARCH 4, AFTERNOON**

**EMERGING TRENDS AND TECHNOLOGY IN CEA [with Speakers from the CEA Industry]**

1:00 – 1:25 pm  Soilless Substrates and Their Enhancements  
Jose Chen-Lopez, Premier Tech Horticulture

1:25 – 1:50 pm  Optimizing production Quality and Yields Through Plant-Centric Automated Environmental Controls  
Artem Efremov, Application Service Expert, Argus Controls

1:50 – 2:15 pm  Introduction of LED Lighting Technology for Horticulture Applications  
Dr. Fei “Jeff” Jia, Technical Solutions Manager, Heliospectra

2:15 – 2:45 pm  Discussion of Previous Lectures - Q&A

2:45 – 3:00 pm  3, 5 Minute Exhibitor presentation

3:00 – 3:25 pm  Coffee Break, Visit Exhibits

3:25 – 3:50 pm  Hydroponic Crop Production Systems - Design, Applications, and Operation  
Jenny Harris - CEO, and Joe Swartz - Vice President, American Hydroponics (AmHydro)

3:50 – 4:15 pm  Discussion of Previous Lecture – Q&A

Dinner – On Your Own
**2020 Short Course Program**

**MARCH 5, ALL DAY!**

7:00am  Breakfast provided

**Hands on workshops at CEAC:**

- 8:00am  Depart hotel for CEAC [Bus provided or drive self]
  [1951 E. Roger Road Tucson, AZ 85719]
- 8:30 – 10:00 am  ROUND 1
- 10:00 – 11:30 am  ROUND 2
- 11:30 – 1:00 pm  Lunch in the CEAC Classroom & Yard
- 1:00 – 2:30 pm  ROUND 3
- 2:45 – 4:00 pm  ROUND 4
- 4:00 – 5:00pm  Additional Round
- 5:00pm  Return to Hotel

**Titles of Workshops:**

- High Wire Tomato Production-
- Fertigation Systems-
- Hydroponic Leafy Greens Production-
- Sensors & Controls with Vertical Farm Tour-
- Specialty Mushroom Production-

**MARCH 6**

**COMMERCIAL GH TOUR [additional registration and fee required]**

- 8:30am  Departing from Hotel [Bus provided or drive self]
- 9:00am-11:00am  Tour of Merchant Gardens
  [555 S Tucson Blvd Tucson, AZ 85716]
- 11:00am  Return to Hotel - box lunch will be provided